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Enclosed for your use is a research paper, "The Soviet Economy in 1976-77 and Outlook for 1978" prepared by the National Foreign Assessment Center of the Central Intelligence Agency.

The study points out that the 3.8 percent increase in Soviet gross national product during 1976-77 represents the combined impact of a marked slowdown in industry, construction, and transportation and a marked recovery in agricultural products. The slowdown in economic growth has been much sharper than Soviet leaders anticipate, according to the paper, and means that a smaller volume of goods and services is being added each year to be divided between consumption, investment, and defense.

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Herbert E. Hetu

Enclosure



**National
Foreign
Assessment
Center**

The Soviet Economy in 1976-77 and Outlook for 1978

A Research Paper

*ER 78-10512
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The Soviet Economy in 1976-77 and Outlook for 1978

*Central Intelligence Agency
National Foreign Assessment Center*

August 1978

Highlights

Gross national product increased at an average annual rate of 3.8 percent during 1976-77, about the same as the preceding five-year average. This aggregate measure, however, reflects the combined impact of a marked slowdown in industry, construction, and transportation and a marked recovery in agricultural production:

- Industrial production—the traditional mainstay of GNP growth—slowed sharply from an average annual growth rate of 6.0 percent in 1971-75 to 3.9 percent in 1976-77. Shortfalls in the production of key industrial commodities—especially steel—were the principal causes of this slowdown. These shortfalls can be traced mainly to the increasing Soviet dependence on less accessible and lower quality ore plus past failures to build sufficient processing capacity.
- Shortages of steel impinged on machinery output, a key source of technological progress and productivity gains. Machinery production—which accounts for one-third of industrial output—increased by 5.9 percent annually during 1976-77 after an average of 8.2 percent in 1971-75.
- In the energy sector, only a major push in West Siberia kept growth in primary energy near 5 percent in 1976-77, about the same as in 1971-75. Some gains in energy conservation were achieved last year as the slowly rising rate of energy consumption per unit of output was brought to a standstill. Nevertheless, growth in energy production—particularly oil—is slowing. Furthermore, the major efforts to exploit the oil-producing fields of West Siberia over the past two years will shorten their producing lives and consequently may cause a sharper slowdown in the years immediately ahead.

Growth of construction activity slowed sharply, and completion of new plant and equipment failed to meet the leadership's expectations in 1976-77:

- While investment grew near the rate planned for 1976-80, runaway growth in the backlog of uncompleted investment projects in both years sharply curtailed the increase in additions to new capacity. The leadership had been counting heavily on reducing the volume of unfinished projects as a major source of increments to new capacity, and we expected that some success would be realized in this area.

Large swings in crop production during 1976-77 continued to cause annual fluctuations in net agricultural production:

- After rebounding in 1976 from the disastrous grain crop of 1975, the growth of farm output fell back to its long-term trend of about 3.5 percent last year—a sharp upturn in livestock production more than offsetting a decline in the production of crops. Some buildup in livestock inventories was facilitated by a liberalized government policy toward private agricultural holdings.
- Per capita meat production in 1976 was set back to levels of the early 1970s as a result of the poor harvest in 1975. Despite a rebound in meat production in 1977, severe shortages persisted, leading to longer queues and scattered reports of protests against food shortages.

These problems are now being joined by a downturn in growth of the working-age population, which will begin to be felt this year and will continue until the mid-1980s:

- Soviet leaders are exhorting management and labor to accelerate productivity growth in order to offset labor shortages but have failed to alter incentive systems to induce such change.

One area in which the Soviets achieved major success in 1976-77 was in reducing the hard currency trade deficit:

- The trade deficit was cut from \$6.3 billion in 1975 to \$5.5 billion in 1976 and \$3.3 billion in 1977.

The Soviet leadership has outlined a scenario of continuing slow growth for 1978. Although modest by Soviet standards, the 1978 plan nevertheless will require better-than-average weather for agriculture as well as success in dealing with the problems of steel and energy. The Soviets must break the bottleneck in steel output, for example, if they are to meet their output plans for industry as a whole and for machinery in particular.

Prospects for economic growth through first half 1979 are heavily dependent on developments in agriculture, which in turn is still at the mercy of the weather:

- A very good crop this year will stimulate industrial growth next year by providing sufficient raw materials while at the same time helping

the nation's hard currency position by reducing the need for grain imports.

- A poor crop, however, will result in a further slowing of economic growth, leading to increased spending for foreign grain and making gains in consumption even harder to achieve.

The Soviet hard currency deficit, also heavily dependent on developments in agriculture, probably will land between \$2 billion and \$3 billion in 1978.

- Imports of machinery and equipment from the West will drop sharply, reflecting last year's decline in orders; but orders should stage a comeback in 1978-79.
- Imports of Western grain in 1978 probably will be in the neighborhood of \$2.5 billion to \$3.0 billion.
- A poor crop in 1978, however, would increase import requirements in 1979 and possibly hard currency borrowing.

The slowdown in economic growth has been much sharper than Soviet leaders anticipated and means that a smaller volume of goods and services is being added each year to be divided between consumption, investment, and defense. So far, investment growth appears to have borne the brunt of this slowdown—falling from an average annual rate of 7.0 percent in 1971-75 to about 4 percent in 1976-77. Whether this trend will continue remains to be seen. If it does, and Soviet plans seem to imply just that, the Soviets will find it increasingly difficult to maintain even the present pace of economic growth.

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PREFACE

This paper is the first review of current Soviet economic performance since publication of our comprehensive assessment of longer term trends and prospects for the Soviet economy through the mid-1980s, CIA ER 77-10436U, *Soviet Economic Problems and Prospects*, July 1977, which was also published by the Joint Economic Committee of the US Congress, 8 August 1977. Economic events in the USSR during 1976-77 support the general trends projected in our earlier study, and we conclude that the central findings of the earlier study remain valid.

The Soviet Economy in 1976-77 and Outlook for 1978

Economic Performance in 1976-77

Growth in gross national product during 1976-77 was influenced primarily by a general upturn in farm output and a marked slowdown in industry, construction, and transportation. Because of these offsets, the average annual rate of growth for the two-year period—3.8 percent—was roughly the same as for the first half of the 1970s (3.7 percent). Growth was somewhat more rapid in 1976 than in 1977, reflecting primarily a strong recovery in farm output—highlighted by a record grain crop—after the previous year's harvest failure. Growth in industry, construction, and transportation was sluggish in both years (see table 1).

The slowdown in industry in 1976-77 is only partially explained by the dislocations stemming from shortages of agricultural raw materials. In both years, the investment program was far behind in completing new plant and equipment, with a pronounced adverse effect on both industrial materials and machinery production.

Also, the poor progress in 1976-77 reflected both the relatively slow increase in the supply of

factors of production (man-hours of labor, capital stock, and agricultural land area) and near stagnation in overall factor productivity (see table 2). Inability to raise productivity is now the key problem confronting the leadership in its quest for sustained economic growth.

Table 1

USSR: Growth of GNP, by Sector of Origin ¹

	Average Annual Percent Change		
	1966-70	1971-75	1976-77
GNP	5.3	3.7	3.8
Agriculture ²	4.5	-0.6	5.5
Industry	6.3	6.0	3.9
Construction	5.5	5.3	2.8
Transportation	6.8	6.6	4.1
Communications	8.9	7.2	6.1
Trade	6.5	4.8	3.7
Services	4.3	3.6	3.1
Other	4.4	2.9	2.5

¹ Calculated at factor cost.

² Excluding intra-agricultural use of farm products and not making an adjustment for purchases by agriculture from other sectors. Value added in agriculture grew by 4.2 percent in 1966-70, -2.1 percent in 1971-75, and 5.5 percent in 1976-77.

Table 2

USSR: Growth of GNP, Factor Supplies, and Factor Productivity

	Average Annual Percent Change			
	1961-70	1971-75	1976-77	1976-80 Plan
GNP	5.1	3.7	3.8	5.0
Factor supplies	4.3	4.2	3.5	3.5
Man-hours	1.8	1.9	1.2	1.5
Capital stock	8.1	7.9	7.1	6.5
Agricultural land	0.4	0.8	0.1	0.5
Factor productivity	0.8	-0.6	0.2	1.5

As shown in table 3, the downturn in growth of major producing sectors of the economy has not yet affected the shares of GNP going to consumption, investment, and defense. Each of the three major claimants is growing at about the same rate as GNP.

Growth in personal consumption slowed in 1976-77 mainly because of a setback in food availability. Demand for meat in particular far exceeded supply, resulting in long queues and scattered reports of protests against meat shortages late last year. Other consumer items, such as automobiles, television sets, and refrigerators, maintained their slow but steady expansion in output, sales, and cumulative inventories held by Soviet households.

Agriculture

After rebounding in 1976 from the disastrous grain crop of 1975, the growth of farm output in the USSR fell back to its long-term trend of about 3.5 percent last year. A decline in crop output in 1977 offset much of the rebound in

output of livestock products after two consecutive years of decline. The record grain crop in 1976, coupled with the continuation of large grain imports, assured abundant forage for livestock in 1977 and accounted in large part for the increase in meat, milk, and wool output (see table 4). Moscow imported approximately 11 million metric tons of grain from the West in 1977, augmenting its record 1976 grain harvest by about 5 percent. About two-thirds was purchased from the United States.

Table 3

USSR: Shares of GNP

	Percent		
	1970	1975	1977
Consumption	58	58	57
New fixed investment in plant and equipment	20	23	24
Defense	11-13	11-13	11-13
Other ¹	9-11	6-8	6-8

¹ Including capital repair, administration, civil research and development, and net additions to livestock.

Table 4

USSR: Production of Major Crops and Livestock Products

	1971-75	1976	1977
Average Annual Percent Change			
Major crops ¹	-1.9	22.1	-5.5
Livestock products ²	3.6	-5.6	7.3
Million Tons			
Grain ³	181.6	223.8	195.5
Potatoes	89.8	85.1	83.5
Sugar beets	76.0	99.9	93.3
Sunflower seed	6.0	5.3	5.9
Cotton	7.7	8.3	8.8
Vegetables	23.0	25.0	23.0
Meat (slaughter weight)	14.0	13.6	14.8
Milk	87.4	89.7	94.8
Wool	0.44	0.44	0.46
Billion			
Eggs	51.4	56.2	61.0

¹ Net of seed and estimated waste.

² Excluding changes in inventories of herds.

³ Measured in "bunker weight," that is, gross output from the combine, which includes excess moisture, unripe and damaged kernels, and weed seeds, and other trash. In order to compare Soviet grain output with that of other countries, a downward adjustment of about 11 percent is in order.

To maintain momentum in the growth of livestock output in the face of a slow recovery of this sector on state and collective farms, the government has relaxed somewhat its restrictions on private agriculture. The persistent shortage of meat and dairy products following the poor 1975 harvest apparently was the impetus for the latest policy swing favoring private agricultural activity. Press articles in 1976 and 1977 not only officially sanctioned private farming but also promised aid, including the all-important provision of a steady supply of feed from state sources. The Ministry of Agriculture issued an order in October 1977 ordering local authorities to explore the possibility of higher quotas for privately held livestock;¹ such quotas have remained unchanged since the early 1960s.²

As shown in table 5 and figure 1, the private sector has begun to respond to these official initiatives. Inventories of all livestock were higher on 1 January 1978 than a year earlier, with private holdings actually registering a gain—its first since 1970. Hogs, for example, have relatively short gestation and maturation periods and provide a good leading indicator of the private sector's direction. The number of privately held hogs was 25 percent larger on 1 January 1978 than on 1 January 1977.

In addition to encouraging private farming activity during 1976-77, the USSR continued to allot a relatively large share of its investment resources to farming. Investment in agriculture increased by an average of 9 percent annually, compared with only 2 percent for the rest of the

¹ The private agricultural sector supplies more than 25 percent of the USSR's total farm output, including more than 30 percent of its livestock products. It is almost exclusively composed of individual holdings of one-half hectare or less, frequently combined with the ownership of one or two head of livestock and small flocks of chickens, geese, or ducks.

Because the government considered private farming to be ideologically inferior to socialized farming, it has treated private farming as no better than a necessary evil. Thus, after a series of average or above-average harvests when the leadership feels optimistic about the agricultural situation, the private sector is repressed. After production setbacks, the leadership recognizes the need for the additional output of the private sector and promotes its expansion.

² One of the first—and certainly most popular—acts of the Brezhnev-Kosygin leadership was to relax Khrushchev's restrictions on private farming. In 1965—the first year in which the more lenient policy was operative—there was a spurt of 13 percent in private livestock holdings (see figure 1).

Table 5
USSR: Livestock Inventories

	1971	1975	1976	1977	1978
	Index: ¹ 1971 = 100				
Livestock	100.0	109.0	106.1	106.9	110.6
Socialized	100.0	113.6	111.5	113.4	116.9
Private	100.0	95.2	89.9	87.3	91.8
	Million Head ²				
Cattle	99.2	109.1	111.0	110.3	112.5
Socialized	74.3	84.6	87.6	87.5	89.3
Private	24.9	24.5	23.4	22.8	23.2
Hogs	67.5	72.3	57.9	63.1	70.3
Socialized	50.9	58.6	45.7	51.3	55.6
Private	16.6	13.7	12.2	11.8	14.7
Sheep and goats	143.4	151.2	147.1	145.3	146.2
Socialized	110.2	119.2	117.7	116.5	117.3
Private	33.2	32.0	29.4	28.8	28.9

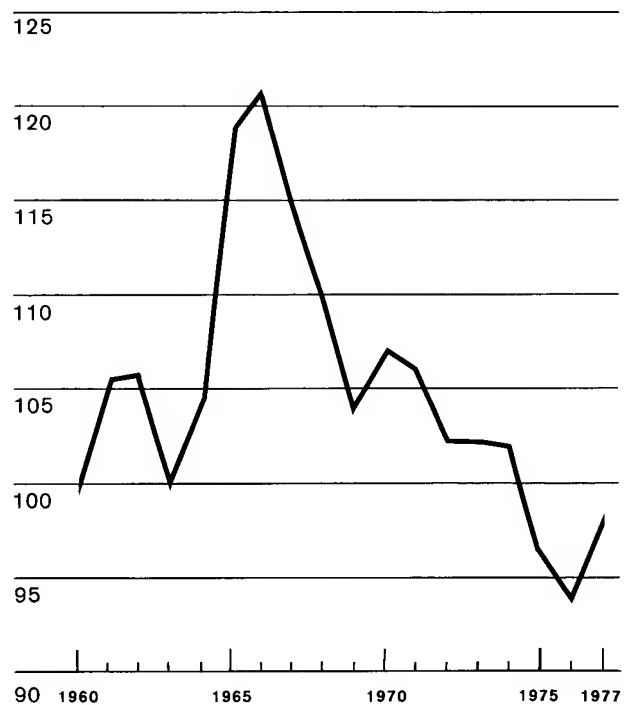
¹ Weighted by average prices of all producers in 1970.

² As of 1 January of the stated year.

USSR: Value of Livestock in Privately Owned Herds

Figure 1

Index 1960=100



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economy. Agriculture's share of investment increased from 22 percent in 1970 to 27 percent in 1977.³ Deliveries of mineral fertilizers to agriculture, however, increased only about 2.5 percent annually, compared with a yearly average of 10 percent during 1971-75, as new capacity for fertilizer production has been slow coming on-stream. Most of the increase in agriculture's share of investment occurred prior to 1976 and reflects the Brezhnev regime's high priority to improving food production—a policy that Brezhnev has stated will continue.

Industry

Industrial output—the traditional mainstay of Soviet economic performance—slowed abruptly in 1976-77, registering an average annual growth rate of 3.9 percent. Production of an unprecedented number of commodities fell short of target—particularly in 1977. Output of industrial materials increased less than 3 percent, with record low growth rates posted by ferrous metals, construction materials, electric power, and crude oil (see table 6). Although recurrent shortages are endemic in the Soviet economy, the stringencies occurring during the last two years have been unusually severe:

- Shortfalls in drilling and prospecting work, due to insufficient drilling crews and equipment, slowed oil production.
- Tight fuel allocations slowed progress across a broad spectrum of industries and transportation facilities.
- Bottlenecks in rail transportation disrupted deliveries of industrial products.
- Tight iron ore supplies and scrap shortages impeded steel output.

Energy

Total primary energy production in 1976-77 was sustained at about the 5-percent annual rate

³ This includes productive investment, such as the purchase of agricultural machinery, as well as investment for "nonproductive" purposes such as municipal and communal facilities, schools, and rural roads. Alone, productive investment in agriculture amounts to about 20 percent of the economy's total investment. In the United States, productive investment in agriculture is less than 5 percent of total investment.

Table 6

USSR: Industrial Production

	Average Annual Percent Change		
	1971-75	1976	1977
Industrial production	6.0	3.7	4.1
Industrial materials	5.4	3.6	2.8
Ferrous metals	3.8	2.7	1.3
Crude steel	4.0	2.5	1.7
Rolled steel	4.1	2.8	0.7
Steel pipe	5.1	5.3	1.2
Primary energy	5.0	5.0	4.8
Coal	1.7	1.5	1.0
Oil	6.8	5.9	5.0
Gas	7.9	11.0	7.8
Electric power	7.0	7.0	3.5
Construction materials	5.1	3.2	1.0
Cement	5.1	1.8	2.2
Slate	4.8	3.5	-10.0
Soft roofing	5.7	7.1	-3.0
Machinery	8.2	5.9	5.9
Consumer nondurables	3.4	-0.6	3.4
Food	4.2	-4.5	4.8
Soft goods	2.6	3.9	1.9

of the past decade (see figure 2) largely because of unrepeatable increases in gas capacity and production. Growth of oil production continued to slow down. The high priority given to raising energy exports for balance-of-payments reasons and increasing concern about future energy supplies led Moscow to enforce stringent energy conservation measures.

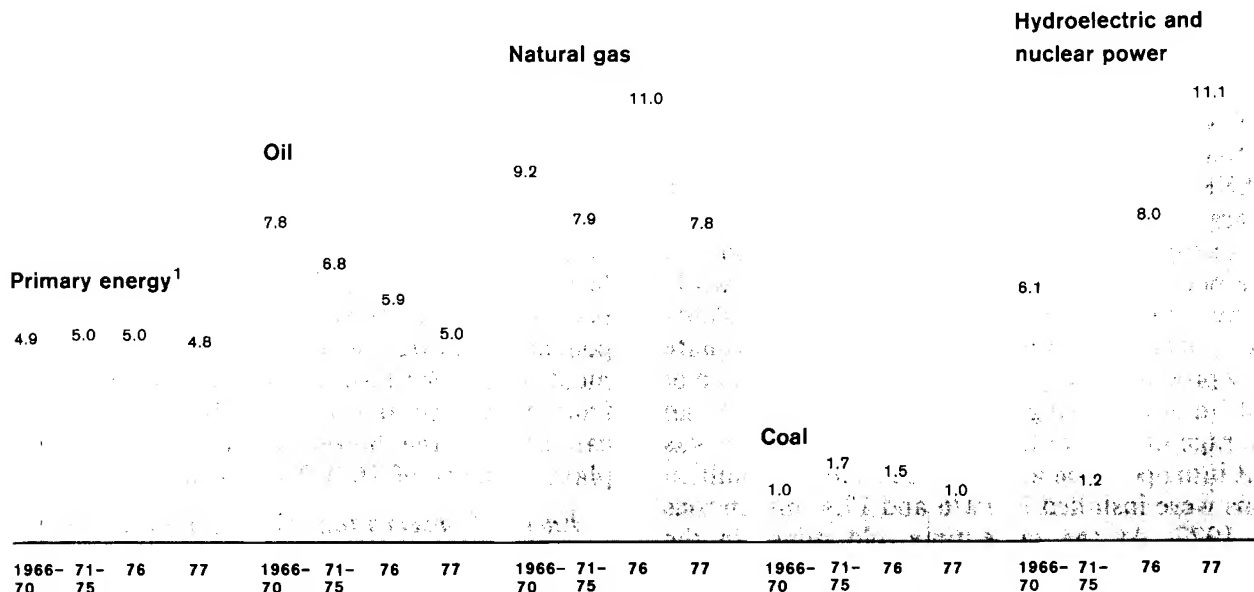
Oil. The increase in oil output in 1977 was about 500,000 barrels per day, the smallest absolute amount since 1972 and the lowest percentage growth (5 percent) in three decades. Only in the new far northern oil regions—West Siberia and the Komi ASSR—did production increase substantially. In the older regions, output declined by 3 percent instead of the drop of about 1.5 percent anticipated by Soviet planners.

The increase in West Siberian production in 1977 was the highest for any year since commercial production began in 1964. West Siberian output now equals that in the Urals-Volga region, long the nation's major producer. Production at West Siberia's Samotlor field, the largest in the country, reached a level of almost 130 million tons (2.6 million b/d) in 1977 and accounted for almost one-fourth of national output.

USSR: Energy Production

Figure 2

Average annual percent change

¹Oil, coal, natural gas, peat and firewood, hydroelectric and nuclear power.

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This field, however, should reach peak output this year, and purchase of expensive Western gas-lift equipment, which would extend its producing life, currently is being negotiated. Development of other small West Siberian fields is lagging behind plan. During 1976-80, at least six to eight new fields per year were to begin commercial production to compensate for the leveling off of Samotlor's output. However, in 1976 and 1977 only about five fields per year were added, mainly because of failure to meet schedules for massive drilling and infrastructural tasks.

Meanwhile, declines in output in 1976-77 were recorded in the Urals-Volga region, the Caspian region, and Central Asia. Most of the Urals-Volga oil-producing fields are in late stages of production so that the decline will continue in the years ahead.⁴

⁴ Production problems during 1976-77 apparently prompted the USSR to reduce its statistical reporting on the oil industry. In 1977, for example, conflicting data were issued for West Siberian oil production while output figures were withheld for older regions where output is declining. For the first time in this decade, no

Natural Gas. In 1976 and 1977, annual output goals for natural gas were overfulfilled, something that had never happened previously. The 1976 increase—31.3 billion cubic meters⁵—was a record and was 8 billion cubic meters above plan. In 1977, output reached 346 billion cubic meters, 25 billion cubic meters over 1976 and 4 billion cubic meters above plan. This unprecedented two-year expansion resulted primarily from new fields coming onstream in West Siberia and the completion of pipelines to the principal consuming regions—the Urals and European USSR.

Maintaining such growth, however, will be difficult. The cost and physical difficulty of developing the major untapped Soviet gas reserves exploitable over the next decade—located in northern Tyumen Oblast—is unprecedented in the history of the world's oil and gas industries and poses problems not previously encountered in

quarterly or annual output figures were reported for three republics—Azerbaijan, Turkmenistan, and Kazakhstan.

⁵ To convert to cubic feet per day, multiply by 0.096753.

either the USSR or the West. Meanwhile, combined gas production from the country's non-West Siberian gas regions peaked in 1977 and will begin declining this year, forcing West Siberia to cover increasingly large losses in national output.⁶

Coal. Efforts to accelerate the growth of coal output in 1976-77 were unsuccessful as the USSR failed to reach production targets in both years. As with oil and gas, many of the deposits in European Russia are nearing exhaustion and are becoming more costly and difficult to work. Other major bottlenecks include rail car shortages, poor use of the labor force, and inadequate new production capacity to offset the depletion of old mines. During 1971-75, for example, an average of 22.8 million tons of new capacity was put into operation annually, but only 12.5 million tons were installed in 1976 and 17.4 million tons in 1977. At the same time, old mines in the Donetsk and Moscow basins were closing at an accelerating rate. Output has been declining in the Moscow basin for several years, but 1977 marked the first year since 1961 that output declined substantially in the Donetsk.

Electric Power. Growth in electric power production fell to an all-time low last year, and for the first time since World War II, power consumption grew at the same rate as GNP—about 3.5 percent—and below the rate of industrial output.⁷

Most of the marked slowdown in growth of electric power use reflected some success in the conservation campaign to reduce consumption of power per unit of industrial output. However, a shortage of generating capacity in the European USSR appears also to be a problem. During 1971-75, electric power output rose 40 percent while power plant capacity increased only 31 percent. The Minister of Power and Electrification noted in early 1976 that an imbalance had reduced the reserve capacity and lowered the

reliability of power supply. Subsequently in 1976, capacity rose by only 5 percent whereas output increased 7 percent, creating further strain on available capacity.

In addition to insufficient generating capacity, providing adequate fuel for thermal power plants is becoming more difficult in the energy-short European USSR. Consequently, Soviet planners regard nuclear power as the most promising source of growth in electricity production in this area. However, the nuclear program is lagging badly. The Soviet machinery industry has not yet been able to supply the planned volume of components, and attempts to purchase nuclear equipment from Western countries have borne no fruit. It will be at least 1990 before the USSR can achieve the hoped-for new nuclear power plant capacity of 10,000 megawatts per hour.⁸

Energy Conservation. The tightening supply of energy resources—together with Moscow's desire to expand exports of oil to hard currency countries in the West—led to stringent domestic fuel allocations last year, which in turn contributed to unusually frequent and widespread fuel shortages.

Recognizing that energy resources must be conserved, the government has recently initiated a program of long-term energy conservation aimed at widespread areas of the economy. The new emphasis on conservation contrasts with the earlier Soviet line that the USSR was insulated from world energy shortages by immense domestic resources.

Unlike the pattern in most Western countries, energy use in the USSR has been growing more rapidly than GNP. However, energy conservation efforts apparently had a measurable effect in 1977. After increasing by about 1 percent per year in 1971-76, energy consumption per unit of GNP leveled off in 1977. In large part, this "energy savings" reflects structural changes in the growth of GNP: specifically, the sharp declines in the growth of energy-intensive branches of industry—ferrous metals, construction materials, and machinery. While a continuation of this trend would further reduce energy consumption

⁶ For more details on the prospects of the Soviet gas industry, see CIA ER 78-10393, *USSR: Development of Gas Industry*, July 1978.

⁷ Because of the rapid growth in the stock of machinery and industrial processes dependent on electric power, the rate of increase in electric power consumption has normally exceeded the annual boost in GNP by 2 to 3 percentage points.

⁸ Even with this capacity, nuclear energy is likely to provide less than 5 percent of total energy.

per unit of GNP, it also would mean a smaller increment to the output of producer goods for future investment and/or defense programs.

The pattern of energy consumption, which is substantially different from that in Western industrial countries, makes large energy savings through efficiency gains more difficult. In Western countries, transportation and residential energy use is large, and the potential for energy savings in these uses is great. In the USSR, many of the techniques now being discussed in the West to save energy in industry and households are already employed on a wide scale. Most urban space heating in the USSR, as well as large amounts of industrial process heat, is provided through cogeneration. In the West, only a relative handful of cogeneration plants exist—in Sweden and West Germany—while the USSR has more than 1,000. The overwhelming bulk of intercity traffic in the USSR is shipped on electrified rail lines rather than by truck. As for passenger autos, the USSR has one for every 40 to 50 inhabitants, compared with more than one for every two inhabitants in the United States and Canada and one for every four to five in Western Europe.

Because of the consumption structure, major energy gains will have to be largely obtained by upgrading industrial technology—a very time-consuming, capital-intensive process—or by major shifts away from heavy industry and toward light industry and services—a shift contrary to the view of dominant Soviet interest groups. Notably, Soviet output of highly energy-intensive products such as iron, steel, and cement is substantially larger than comparable US output. Iron and steel, for example, account for nearly 13 percent of Soviet energy consumption, compared with only about 3 percent in the United States.

Steel

Growth of steel production fell sharply in both 1976 and 1977 (see table 7). Growth has slowed because of inadequate investment in steelmaking facilities and insufficient supplies of high-quality raw materials. A steady decline in the quality of Soviet iron ore has forced the diversion of investment funds to ore-mining and ore-beneficiating

Table 7

USSR: Steel Production

	Average Annual Percent Change		
	1971-75	1976	1977 ¹
Crude steel	4.0	2.5	1.7
Finished rolled steel	4.1	2.8	0.7
Steel pipe	5.1	5.3	1.2

¹ Estimated.

projects. Tight supplies of iron ore have hampered production of pig iron. Scrap—the other major steelmaking ingredient—also is in short supply.⁹

Inability of the Soviet steel industry to produce cold-rolled sheet, tinplate, large-diameter pipe, and even structural steel in sufficient quantities has transformed the USSR into a net steel importer at a substantial cost in hard currency. Moscow spent \$2.3 billion on steel imports from the West in 1976 and at least another \$2 billion in 1977.

The USSR's dependence on imported steel probably will continue or even increase. Construction of new steelmaking capacity has lagged badly, and most of the potential for squeezing additional output from existing plants has already been tapped. Meanwhile, programs to accelerate resource development in the eastern regions of the country are gaining importance and will spur demand for types of steel already in short supply.

Other Industries

There are growing signs that the shortfalls in domestic steel output, coupled with a hard currency constraint for expanding steel imports, have begun to hurt machinery production, especially the output of spare parts. Production of machinery—the source of producer's equipment, defense hardware, and consumer durables—increased by 5.9 percent annually during 1976-77, down from the 8-percent average annual rate of growth in the first half of the 1970s. The decline

⁹ The Soviets launched a campaign in 1977 to press industrial enterprises to meet their quotas for turning in scrap. The pressure was so intense in some quarters that managers were known to turn in as scrap machinery imported several years ago but never installed or used.

in freight car and diesel locomotive production aggravated the existing bottleneck in railroad transportation. During 1977 the Soviet press blamed freight car shortages for limiting deliveries of a wide spectrum of industrial materials. Below-plan output of generators, electric motors, machine tools, and oil equipment last year will also spawn problems of capacity expansion in the industrial materials sector in 1978.

The number of metalcutting machine tools increased during 1976-77 at about the planned average annual rate of 1 percent. Production of numerically controlled machine tools was scheduled to increase by about 9 percent annually in value terms during 1976-80 but increased only 6.7 percent annually in 1976-77. This shortfall—caused by a lack of critical mechanical components—suggests that the Soviets continued to have problems shifting the product mix toward high-precision, automatic, and semiautomatic machine tools—a key element in the leadership's program to modernize the industrial sector.

The Soviet computer industry is on the threshold of a major new advance in computer technology as a new family of data-processing computer systems patterned after the IBM 370 is now moving into production. These RYAD-II computers are faster and much more versatile than the models they will replace, but the need for high-grade associated software and technical manpower, as well as the ineffective employment of advanced computers at the enterprise level, will severely limit their usefulness.

Resource Availability and Use

Labor Force

Anticipating a slowdown in labor force growth this year, Soviet planners have been urging more efficient use of the work force. Despite official concern with the impending labor shortage, enterprise managers continue to ignore the leadership's appeals for introducing labor-saving innovations; current managerial "success indicators" still make it profitable to squirrel away extra labor resources and to avoid innovations. As a result, the size of the industrial labor force in 1977 already exceeded the 1980 plan, and the

total number of wage and salary workers at all state-owned enterprises was only slightly below the 1980 plan target. The rapid employment growth was made possible by the continuing expansion of the working-age population (men ages 16 to 59 and women 16 to 54) in both 1976 and 1977 and by continuing transfers from collective farms to industrial and other state-owned establishments.¹⁰ This trend will change abruptly, however, as a marked slowdown in the growth of the overall labor supply starts taking effect this year.

To prepare for the slowdown in labor force growth in 1978, Moscow modified its education system to ensure that secondary school graduates would be ready for immediate entrance into the work force. In recent years, the share of general secondary school graduates admitted to full-time higher schools has declined, and increasing numbers of secondary school graduates were untrained and unemployable. Many of these students enrolled in parallel secondary school systems where they spent an extra year or more and thus delayed entering the labor force.

To deal with this problem, Moscow ordered in late 1977 that vocational training in general secondary schools (grades 9 to 10) be increased from two to four hours each week. In addition, eighth-grade graduates were to receive expanded counseling services, and local commissions would help them choose one of four alternative paths of secondary education:

- Vocational technical schools with three-year programs that provide a specific skill but only a slight chance for admission to higher schools.
- Secondary specialized schools with three- or four-year courses for technicians and other semiprofessionals.
- General secondary schools with the traditional two-year program that is the path to higher education.

¹⁰ The working-age population increased at an average annual rate of close to 2 percent, and the annual increments to that population—about 2.8 million persons—were the largest in almost 25 years. Meanwhile, collective farm employment dipped from 15.4 million in 1975 to 14.7 million in 1977, about a 2-percent annual decline and about the same as the average annual decline during 1971-75.

- Schools for working youth, which provide part-time general secondary education intended mostly for those in rural areas.

If effective, these changes should expedite the hiring of teenagers and increase their share of the labor force.

Capital Formation

Problems in investment programs over the past two years are harbingers of continued poor growth performance. Despite efforts to concentrate on completion of projects already begun, the increase in gross additions of new plant and equipment—a measure of the amount of new capacity brought onstream—fell to a record low of 1.4 percent in 1976; progress was a little better last year (see table 8). Meanwhile, as additions of new plant and equipment faltered, the inventory of uncompleted projects—"unfinished construction" in Soviet terminology—increased by more than 20 percent during 1976-77.¹¹ Project completions continue to be frustrated by endemic bottlenecks in the supply of components—particularly machinery—and a lack of incentive in construction organizations, where bonuses are based largely on the value of work completed. Basic construction work has a high ruble value, but finishing work does not.

A key plank in the regime's current investment strategy is a halt in the growth in 1976-80 of unfinished construction and an acceleration of completions, emphasizing projects involving more new equipment and less new construction. Thus, a continued slide in growth of machinery output could dash the leadership's investment plans and, in turn, jeopardize needed gains in

¹¹ The resultant backlog of uncompleted projects has tied up enormous sums of investment resources and contributed to a further decline in the productivity of investment. The volume of unfinished construction amounted to more than three-fourths of total investment in 1977. In industrial investment the ratio of uncompleted construction to total investment in the USSR is about double that for the United States. Soviet sources indicate that the elapsed time between project initiation and full-scale production averages seven to eight years for large enterprises; comparable installations in the developed West average only one-half as much time. Even if the Soviets managed to halt the growth in unfinished construction completely, the addition to the stock of plant and equipment that this measure would provide by 1980 would amount to 1.7 percent of the level of capital stock in 1977.

Table 8
USSR: Indicators of Capital Formation

	Average Annual Percent Change		
	1971-75	1976	1977 ¹
Total new fixed investment ²	7.0	4.5	3.3
Gross additions of new plant and equipment ²	6.7	1.4	2.8
Backlog of unfinished construction ³	7.9	9.6	11.2

¹ Estimated.

² Gross additions of new plant and equipment (capital stock) differ from gross fixed investment in that they include only those investment projects that were completed.

³ Some equipment installed in unfinished plants is included in this category.

productivity.¹² In addition, major investment projects are becoming longer term and costlier, requiring large amounts of supporting infrastructure before they can become operational. For example, the Soviets are becoming increasingly dependent on the natural resources of Siberia where transportation, housing, and other facilities are lacking and where construction costs range from 30 percent higher to more than double those in the European areas. Therefore, the construction component of new investment likely will remain large.

Inability to bring new capacity onstream more rapidly will lead to continued slowdowns in capital formation. This will depress the growth of output even further—particularly if no gains are made in raising the productivity of the stock of plant and equipment. Here the Soviet record is not encouraging.

Changes in Efficiency of Resource Use

From New Plant and Equipment. Because the principal carrier of new technology into the production process is new machinery and equipment, Soviet planners had hoped that by stepping up the rates for replacing obsolescent machinery with new machines, they would be able to rely more heavily on productivity gains as the major source of growth. However, although the ratio of replacement of used machinery to investment in

¹² Most gains in productivity result from technological advances embodied in new machinery and equipment. When introduced into the production process, the new machinery and equipment usually results in a direct saving of labor and/or materials per unit of output.

new "green field" sites is increasing, much of the new equipment is technologically similar to that already in existence. Moreover, the acquisition of foreign technology and equipment has not provided a dramatic boost to the productivity of capital. The USSR will continue to benefit from imports of Western machinery and equipment in selected areas such as chemicals, high-quality steels, and oilfield equipment. But the overwhelming share of the USSR's producer durables must come from domestic production, and as long as the domestic economy remains no more capable than in the past of generating its own technical progress, productivity gains are likely to remain small.

From Managerial Reform. Despite lipservice to economic reform by the top leadership and by prestigious economists during 1976-77, no significant steps were taken to focus incentive systems toward more efficient production, accelerated introduction of new technology, and improved product quality. The near stagnation in productivity growth in 1976-77 reflected at least in part the perpetuation of inefficiencies in planning and management. Bonuses still depend directly or indirectly on gross output, encouraging lavish use of inputs and discouraging introduction of new products or production techniques.

At the 25th Party Congress in February 1976, President Brezhnev acknowledged the need for an overhaul of the incentive system but offered no specific alternatives. Thereafter, the Soviet media unleashed a barrage of criticism against the existing incentive system and suggested that some form of "net output" success indicator replace "gross output."

The difficulties of successfully integrating new technology into the Soviet economy also result in large part from perverse incentives. Enterprise managers resist introducing new processes or equipment because it disrupts production schedules, thereby reducing "gross output." In December 1977 *Pravda* appealed to economists to find an incentive system that would speed the introduction of new technology because the fear of financial loss clearly deters the use of new technology. So far, however, no major changes have been forthcoming.

Consumer Welfare

The gap between consumer expectations and the availability of goods probably widened during 1976-77, largely because food shortages stemming from the poor 1975 harvest persisted in both years. Supplies of nonfood consumer goods and services continued to grow at moderate rates. Aside from agriculture, which has received an increasing share of investment resources, the consumer industries have not risen from their traditionally humble position in the investment pecking order. Consumer-related machinery imports, for example, are a relatively small percentage of total machinery imports from the West.¹³

The leadership's pledge to increase the variety and quality of the diet continued to be one of its most expensive and elusive goals. Increasing meat output in particular has become the key target and the one by which the Soviet consumer tends to measure his relative affluence. Yet over the past two years, despite massive feed imports, Soviet agriculture was not able to maintain meat output at the 1975 level. Meat output fell sharply in 1976, then recovered in 1977, leaving per capita meat output in 1977 slightly below that in 1974 and 1975. Meat shortages were frequent and widespread, especially in 1977, occurring in small cities and towns as well as in major cities.

In contrast with food supplies, the availability of nonfood consumer goods and services continued to improve. Nevertheless, poor quality and design, coupled with the lack of assortment, constrained the growth in sales of such goods, and inventories of unsold goods probably rose in the last two years.

Defense ¹⁴

Although continued worsening of the economic scene is likely to trigger debate in Moscow over the future levels and patterns of military expenditures, to date the defense sector apparently has not been affected by the changes in the rate of economic progress. Defense programs

¹³ In 1976-77 consumer-related machinery imports constituted 2 percent of all machinery imports from the West.

¹⁴ For a more detailed treatment of recent Soviet defense spending, see CIA SR 78-10121, *Estimated Soviet Defense Spending: Trends and Prospects*, June 1978.

have great momentum as well as powerful political and bureaucratic support, and major military programs have been well funded.

During 1976 and 1977, estimated Soviet defense spending in constant rubles grew at an average annual rate of 3 to 4 percent. Although this pace is slightly below the average growth of 4 to 5 percent for the past decade, it does not signal a major policy shift, nor is it related to economic difficulties. Rather, it reflects the fact that several major weapons procurement programs, such as the D-class SLBM program and tactical fighter aircraft programs, are winding down.

As in earlier years, defense spending during 1976-77 had a significant economic impact:

- The defense effort consumed between 11 and 13 percent of Soviet GNP.
- Defense consumed about one-third of the final product of machinebuilding and metalworking, the branch of industry that produces investment goods as well as military hardware.
- In addition, the defense sector siphoned off a large share of the economy's best scientific, technical, and managerial talent and large amounts of high-quality materials, components, and equipment.

During the 1976-77 period, about one-half of total Soviet defense spending went for investment—which includes spending for procurement of new equipment and major spare parts as well as for construction of facilities. Operating expenditures—which include spending for military personnel and for the operation and maintenance of military equipment and facilities—received a little more than one-fourth of total defense spending. Slightly less than one-fourth of total defense spending went for military research, development, testing, and evaluation.

No major shifts were evident in the shares of defense spending allocated among the military services. The Ground Forces and Air Forces continued to claim the largest shares, while the Strategic Rocket Forces continued to claim the smallest share.

During the 1976-77 period, Soviet uniformed military manpower, including militarized security forces and Construction and Transportation Troops, totaled more than 4.5 million men—almost 3.5 percent of the total labor force. The Ground Forces claimed the largest share of military personnel—almost 40 percent.

Foreign Trade

During 1977 Moscow virtually eliminated its short-term hard currency payments problems, although hard currency debt increased to \$15 billion to \$16 billion (see figure 3). Soviet foreign trade data for 1977 indicate that a substantial reduction in the trade deficit reduced the current account deficit to its lowest level in three years. In 1978, current account transactions will probably be roughly in balance.

After a record \$6.3 billion hard currency trade deficit requiring heavy borrowing in 1975, Moscow started to tackle its balance-of-payments problems. In 1976, the Soviets reduced their hard currency trade deficit to \$5.5 billion and did even better in 1977, cutting it to roughly \$3.3 billion (see table 9). Soviet hard currency grain imports fell from a record high of \$2.6 billion in 1976 to about \$1.4 billion last year. Grain imports from the United States declined from \$1.58 billion in 1976 to about \$810 million in 1977. Equipment imports also grew more slowly in 1977, rising by an estimated 5 percent to \$5.2 billion.¹⁵

As a major world supplier, the USSR took advantage of higher nonfarm commodity prices in 1977. Oil earnings rose to \$5.6 billion on the strength of both higher prices and export volume. The Soviets also reaped the benefits of higher world prices for diamonds and platinum-group metals—traditional hard currency earners. Soviet natural gas exports jumped from \$358 million in 1976 to roughly \$568 million last year, mainly because of increased volume.

Moscow's hard currency earnings from other sources—arms sales, tourism, and transportation services—have risen substantially in recent years. Shipments of military equipment paid for

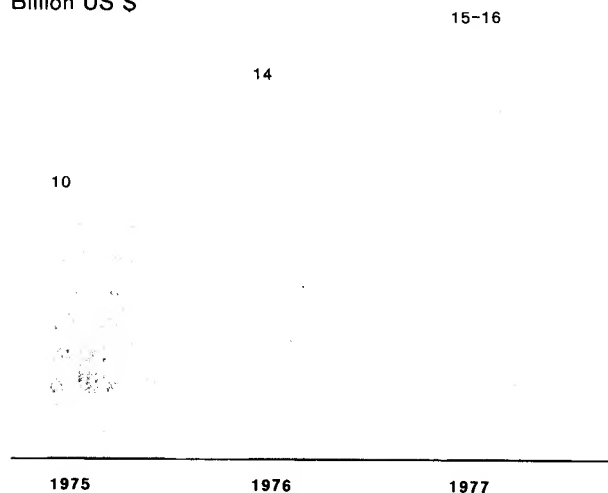
¹⁵ Excludes purchases of Western equipment for the Orenburg pipeline bought by Moscow on behalf of Eastern Europe.

USSR: Hard Currency Debt and Debt-Service Ratio

Figure 3

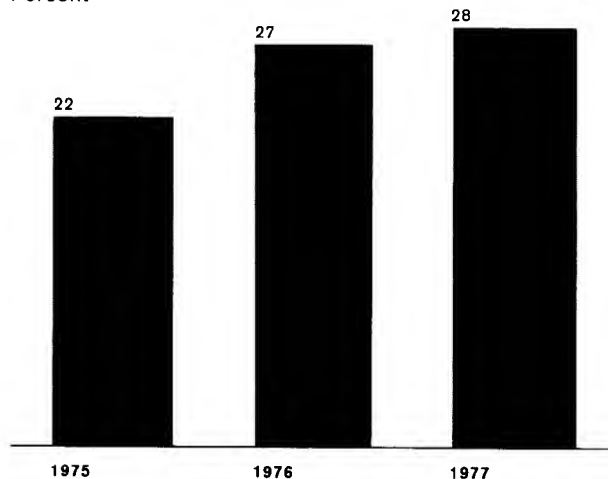
Hard currency debt

Billion US \$



Debt-service ratio¹

Percent



¹Defined as principal and interest payments as a share of hard currency exports.

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in hard currency probably reached \$1.5 billion in both 1976 and 1977, up from \$800 million in 1975. Major recipients have included Algeria, India, Iraq, Libya, and Syria. Net receipts from transportation and tourism were an estimated

\$790 million—up from \$600 million in 1976, primarily because of a decline in grain imports carried on Western ships.

These trends have reduced Moscow's hard currency debt problems, which had become worrisome by the end of 1975. Net borrowing has fallen from \$5 billion in 1975 to \$4 billion in 1976 and to between only \$1 billion and \$2 billion last year.

The Soviets have also reduced their reliance on Western commercial credits in an effort to counter adverse publicity on the size of their debt and to avoid paying what they considered unacceptable interest rates on further bank loans. Moscow has increasingly favored government-guaranteed supplier credits and direct government loans, which usually contain more attractive terms. The Soviets stepped up gold sales, which produced about \$1.4 billion in revenues in 1976 and roughly \$1.6 billion in 1977.

Soviet orders for Western machinery and equipment fell sharply to \$3.7 billion in 1977, the lowest level in three years (see table 10). Roughly \$1 billion of the \$2.3 billion fall in orders from their 1976 level can be accounted for by the fact that the USSR placed a major share of its equipment orders for the Orenburg natural gas pipeline in 1976. The magnitude of the overall drop in orders also reflects Moscow's desire to further curb future hard currency trade deficits and thus improve its balance-of-payments position in 1978-79. The decline in Soviet imports of Western equipment expected for 1978 would not necessarily damage short-term Soviet industrial performance; indeed, it may facilitate Moscow's efforts to reduce the backlog of unfinished construction and uninstalled machinery discussed above.

The timing of orders for Orenburg (reflected in "oil and natural gas" in table 10) accounted for almost one-half of the drop in total 1977 orders. Metalworking and metallurgical equipment also fell sharply from \$1 billion in 1976 to \$600 million in 1977. More than one-half the 1977 total orders for this category was made up of yearend orders for West German direct reduction and pelletizing equipment for the Kursk steel combine.

Table 9

USSR: Hard Currency Balance of Payments

	1975	1976	1977 ¹
	Million US \$		
Trade balance	-6,335	-5,517	-3,279
Exports, f.o.b.	7,794	9,721	11,354
Imports, f.o.b.	14,129	15,238	14,633
Gold Sales	1,000 ²	1,400	1,600
Invisibles and hard currency trade, nes ³	900	1,200	1,200
Current account balance	-4,435	-2,917	-479
Net medium- and long-term credits ⁴	3,020	2,188	1,200
Basic balance	-1,415	-729	721
Net short-term credit ⁵	1,980	1,812	200
Errors and omissions ⁶	-565	-1,083	-921
	Billion US \$		
Net hard currency debt	10	14	15-16
Debt service ⁷	1.7	2.6	3.1
	Percent		
Debt-service ratio ⁸	22	27	28

¹ Estimated.² Including a rumored \$250 million sale to Middle Eastern countries.³ Including net interest payments, net receipts from tourism and transportation, net official transfers, and arms deliveries.⁴ Excluding medium-term borrowing by the International Investment Bank and the International Bank for Economic Cooperation, which borrow on behalf of countries of the Council for Mutual Economic Assistance (CEMA). The extent to which the USSR has borrowed from these CEMA banks (if at all) is unknown.⁵ Including estimated short-term bank-to-bank borrowing, payments deferments obtained from suppliers, and possible borrowing from Middle Eastern countries.⁶ Including intra-CEMA hard currency trade and other hard currency payments.⁷ Principal repayments on medium- and long-term debt plus interest payments on all debt.⁸ Debt-service payments as a share of merchandise exports.

Table 10

USSR: Machinery Orders Placed With Hard Currency Countries

	1976	1977 ¹	
	Million US \$		Percent Change
Total	5,957	3,652	-39
Of which:			
Chemical and petrochemical	1,818	1,615	-11
Oil and natural gas	1,685	303	-82
Metalworking and metallurgy	1,015	587	-42
Timber and wood	146	65	-55
Automotive	355	183	-48
Ships and port equipment	283	67	-76
Consumer goods equipment	121	75	-38
Mining and construction	120	147	22

¹ Estimated.

Orders for Western chemical equipment declined by roughly \$200 million. New contracts were concentrated on machinery for the manufacture of (a) petrochemicals, particularly intermediates for the production of plastics and synthetic fibers, and (b) chemical fertilizers, which are needed in tremendous quantities to implement plans for agricultural growth. Large purchases included three chemical fertilizer plants and 10 ammonia plants totaling \$380 million from Japan and two methanol plants worth \$250 million from the United Kingdom. Moscow also gave the British orders for a \$139 million materials processing plant for tires and for an \$86 million polyethylene plant.

Soviet Perceptions of Economic Problems

Soviet leaders clearly have been disappointed with the economy's recent performance. Although Moscow anticipated some slowdown as reflected in their plans for 1976 and 1977, actual growth has fallen more sharply than they expected (see table 11).

The leadership is particularly concerned about their inability to get more capital onstream quickly. They see the continued slide of return on investment and the sharp slowdown in industry, construction, and transportation.

The economic plan for 1978, announced in December 1977, reflected the tacit recognition by the Soviet leadership that key targets of the 10th Five-Year Plan (1976-80) were unattainable (see figure 4). We calculate that an industrial growth rate of 8 percent annually would be required to meet the 1980 goal, but the 1978 Soviet plan called for an increase of only about 4.5 percent. More specific plan cutbacks are

apparent in the critical energy sector as well as in machinery production (see table 12).

Also in December 1977, the Central Committee called for more concentration of resources on oil and gas development in West Siberia's Tyumen Oblast, which possesses virtually all the major untapped Soviet reserves feasibly exploitable in the next decade. This policy reflects the government's concern about (a) the peaking of the Samotlor oil and Medvezhye gas fields in Tyumen, (b) the critical rundown of oil reserves because of a decade of insufficient geological exploration, and (c) the steeply rising resource costs associated with drilling wells in increasingly less productive deposits farther away from established bases of support and transportation.

Soviet responses to the CIA analysis of Soviet oil production—issued during the spring and summer of 1977—had already demonstrated that Soviet authorities were well aware of their energy difficulties. Even the most optimistic responses leaned heavily on the assumption that Siberia holds huge stores of yet undiscovered or unexploited energy resources.

According to planning officials, during the past 18 months the USSR's efforts to formulate a 15-year plan (1976-90) hit a snag because of serious difficulties in estimating and allocating energy resources and other raw materials. Their remarks indicated that the long-term economic plan was far from complete. In addition, public information on the 15-year plan as well as more detailed information on the five-year plan for 1976-80 is likely to be limited.

Meanwhile, at the recent July session of the Supreme Soviet, Premier Kosygin announced that the Council of Ministers has formed a high-

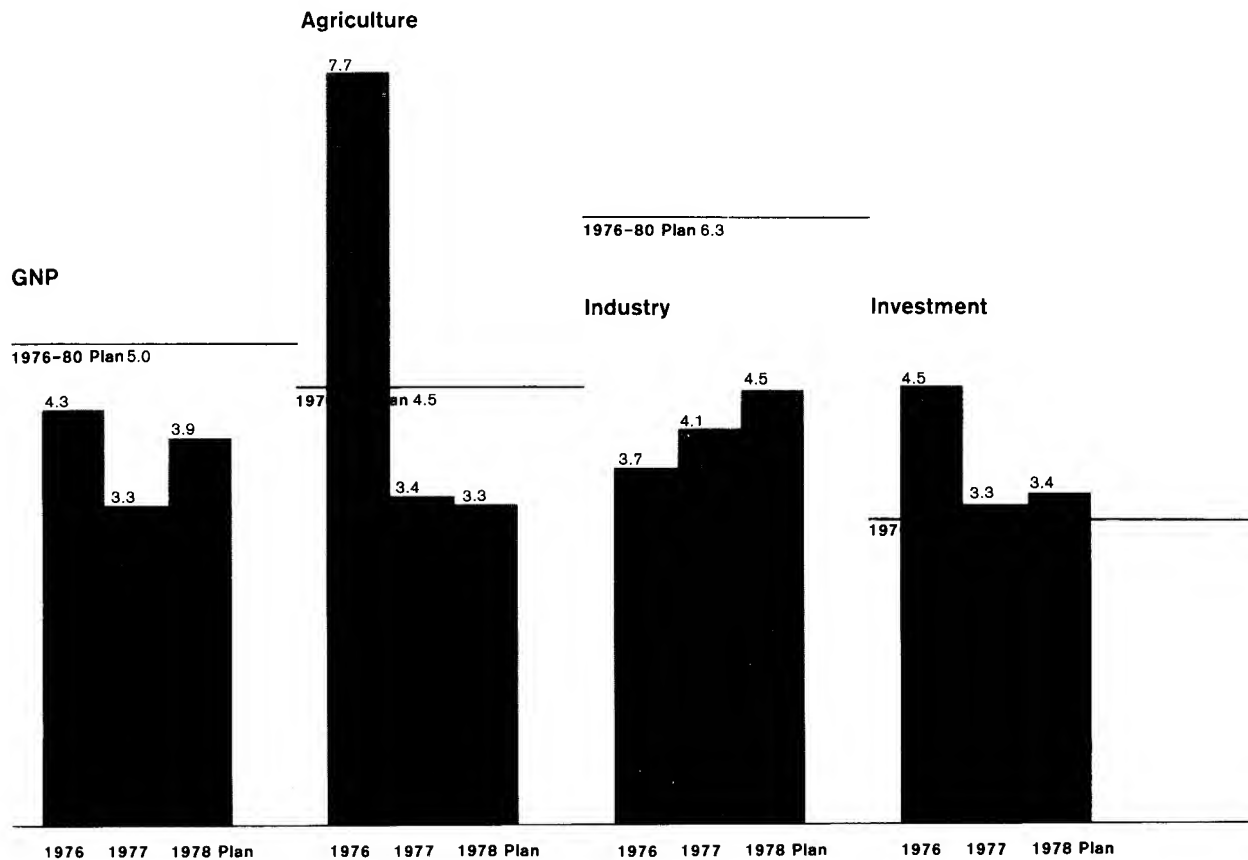
Table 11

	USSR: Planned and Actual Growth					
	1971-75		1976		1977	
	Plan	Actual	Plan	Actual	Plan	Actual
	Average Annual	Percent Growth	Percent	Percent	Percent	Percent
GNP	6.0	3.7	4.5	4.3	5.3	3.3
Industry	8.0	6.0	4.3	3.7	5.6	4.1
Agriculture	3.5	-0.6	8.5	7.7	7.5	3.4

USSR: Selected Indicators of Economic Performance

Figure 4

Average annual percent change



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level commission to "solve current questions of economic growth" and to check on fulfillment of the state plan and budget. This action appears to be another indicator of the government's concern over increasingly serious economic problems.

Soviet perceptions of their own economic problems are necessarily reflected in their economic policies toward their allies in Eastern Europe. The latter had been told early in the 1970s of the Soviet intent to limit 1976-80 oil exports, clearly because of anticipated production constraints. The Soviets subsequently eased these limitations mainly because of severe hard currency short-

ages in parts of Eastern Europe, which limited its ability to purchase oil in the West. The less restrictive energy export policy, however, was conditioned on Eastern Europe's participation in resource development in the USSR.

Despite its own energy problems, the USSR plans to honor its commitments in 1978 to supply Eastern Europe with the volume of oil established for that year in the current five-year plan (1976-80). This is important to the East Europeans, who depend on Moscow for more than 75 percent of their oil consumption. According to an official of the Soviet oil trade organization, total

Table 12

USSR: Industrial Growth Plans in Perspective

	Average Annual Percent Change			
	1976-80 Plan	1976-77 Actual	1978-80 Required	1978 Plan
Total	6½	4	8	4½
Energy				
Coal	3	1	3½	3
Oil	5½	5½	5½	5
Gas	8½	9½	8	7
Electric power	6	5	6½	5
Ferrous metals				
Crude steel	3½	2	4½	4
Rolled steel	3½	1½	4½	4½
Steel pipe	4½	3	5	4½
Construction materials ..	5½	2	7½	NA
Cement	3⅓	2	4½	NA
Machinery	9	6	11	7½
Consumer nondurables ..	4½	1½	7	4
Chemicals	10½	5½	13½	NA

oil deliveries to Eastern Europe are expected to reach 1.56 million b/d by 1980.

Finally, decisions and activities of the Soviet leadership in first quarter 1978 suggested strongly that Moscow perceived the severity of its long-term energy problem and was developing appropriate conservation policies. A Communist Party Central Committee resolution in March 1978 commissioned research and development institutes to step up production of technology for long-term energy saving. In the same month, Andrey Kirilenko, Second Secretary of the Communist Party Secretariat, convened a special conference in the Kremlin attended by other high-level party and industry officials. He called for a speedup in "the creation of new, progressive types of internal-combustion engines—reducing the amount of metal used in their manufacture and, above all, enhancing their economy of operation."

The Outlook for 1978 and Early 1979

The economic plans for 1978 (see table 13) are among the lowest ever set by the USSR. However, the overall performance of the Soviet economy this year could be better than the rate of

Table 13

USSR: Aggregate Growth Performance and Plans ¹

	Average Annual Percent Change		
	1976	1977	1978 Plan
GNP	4.3	3.3	3.9
Agriculture ²	7.7	3.4	3.3
Industry	3.7	4.1	4.5
Construction	3.4	2.2	5.0
Transportation	4.5	3.8	5.0
Communications	6.4	5.8	6.0
Trade	2.9	4.0	3.9
Services	3.0	3.3	3.5
Other	2.9	2.1	4.3

¹ Calculated at factor cost.

² Excluding intra-agricultural use of farm products and not making an adjustment for purchases by agriculture from other sectors. Value added in agriculture grew by an average of 8.4 percent in 1976, 2.3 percent in 1977, and will grow by 2.4 percent in 1978 if plans are realized.

about 3½ percent posted in 1977 if the USSR were able to:

- Break the bottleneck in steel output.
- Arrest the growth of uncompleted projects for new plant and equipment.

- Lift substantially larger quantities of oil from West Siberian fields.
- Luck out with better-than-average weather for agriculture.
- Achieve major efficiencies in the use of material resources, especially energy and metals.
- Minimize disruptions caused by deficiencies in rail transport.

The Soviets are critically dependent, for example, on an acceleration in steel output if they are to meet their 1978 plan for industrial production, particularly for machinery output and in construction. Even though the 1978 target for steel output of 152.6 million tons is practically the same as the 1977 goal, it will require an increase in production of more than 5 million tons since output fell so far below planned levels last year. Steel production increased by 3.5 million tons in 1976 and only 2.5 million tons in 1977. A large capacity was completed at the end of 1977, but startup problems and shortages of iron ore and scrap are likely to result in a failure to reach output goals in 1978.

Once again, Soviet planners are counting heavily on maintaining growth in plant and equipment by holding down the backlog of uncompleted construction projects. Investments in new plant and equipment are to continue rising at about 3.5 percent—one-half the annual rate of growth in 1971-75—with emphasis remaining on replacing obsolescent machinery and equipment. This strategy—cutting back on new “green field” construction in favor of replacement machinery and equipment—may need to be revised, however, in order to provide the supporting infrastructure for enhanced development of oil and gas resources in Siberia.

Energy production is continuing to slow. Thus far in 1978, output of both coal and oil has slowed still further, and total energy production growth is likely to be less than 4 percent in 1978. Based on the monthly production data released so far, we believe that oil production this year is unlikely to exceed 11.3 million b/d, for growth of only 3 to 4 percent. With a peak and subsequent

decline in oil production almost certain by the early 1980s, a further sharp slowdown in total energy production is likely to occur.

The most striking information in the 1978 plan is that the Soviets expect only five of the 26 oil-producing regions to boost their output in 1978. Of these five, only West Siberia is committed to a large increase—700,000 b/d. The other four regions together are likely to increase their production by only 100,000 b/d. The USSR obviously expects sharp declines in a number of the older producing regions, where many deposits tapped for more than 30 years are being depleted.

Such heavy dependence on West Siberia for the bulk of future increases probably means that the Samotlor oilfield will have to be pushed beyond earlier planned peak output levels. Other smaller West Siberian fields also may have to be operated above maximum efficient rates of recovery to achieve output targets. This will result in still shorter producing lives for these fields, but the Soviets have no practical alternative until they are able to make large new oil finds.

Output of gas during 1978 will probably total about 370 billion cubic meters as planned. The five-year plan calls for 1980 output of 400 billion to 435 billion cubic meters, and the USSR should be able to fulfill that target. However, the task will not be easy. Beginning in 1977, output of gas from all of the older producing regions (particularly the Ukraine and Central Asia) began to decline, and all of the growth had to be provided by the enormous reserves located in the far northern portion of West Siberia, where infrastructure problems and massive pipeline requirements will limit growth of output and sharply boost the costs of production and transport.

Coal is doing poorly. In first half 1978, coal output was unchanged from the corresponding 1977 output, and 1978 annual output may not much exceed 1977's 712 million tons. Soviet spokesmen are also less bullish on coal over the longer term, perhaps reflecting the growing problems of maintaining output in the old European

areas and the massive transport difficulties involved in a large expansion of Siberian coal output.¹⁶

Stringent goals for economizing on steel and fuel have been set for all sectors of the economy. Although few tangible figures are available, the conservation theme runs throughout the plan and budget announcements.

The 1978 plan calls for grain production of 220 million tons, up from the 195.5 million tons harvested last year. This level of output has been attained only twice before and can be achieved only if the weather proves highly favorable. In 1977, grain output fell nearly 20 million tons short of the goal even with above-average precipitation in important grain-producing areas.

Even with favorable weather for agriculture, the actual downturn in forage crop production in 1977 could adversely affect growth in the livestock sector in 1978. Production of these crops—including corn for silage, fodder roots (beets, turnips, and carrots), and hay—dropped 4 percent in terms of nutrient value from 1976 levels. The reduction in forage supplies will need to be offset by additional feeding of grain. Grain supplies, down because of the smaller 1977 grain crop, already are being squeezed in the socialized sector as farms comply with official directives to guarantee private owners adequate grain for their livestock holdings.

Even if a record grain crop is achieved this year, the Soviets will still have to import 15 million to 20 million tons of grain in the fiscal year beginning 1 October 1978 and will almost certainly be forced to import comparable quantities in the following years unless better-than-average weather conditions prevail. Meanwhile, the resource allocational policies in support of agriculture for the 1976-80 plan period appear to remain intact. In a major address on long-range agricultural policy to the Central Committee Plenum in early July, Brezhnev indicated no new initiatives in the intermediate term of 1978-80 and, indeed, implied continuation of recent trends in resource use in the 1981-85 period. He also repeated his admonition, first voiced in

¹⁶ In the past year the Coal Minister postponed the time at which output will reach 1 billion tons from 1990 to the year 2000.

October 1976, that greater attention and assistance must be given to private farm plots. Brezhnev confirmed that there has been an important policy change—the scuttling of ambitious plans for high-rise urban-type housing in the countryside—as a result of renewed official interest in providing families in rural areas with separate houses surrounded by garden plots and outbuildings for livestock and poultry.

The Soviet leadership apparently expects consumption to make substantial gains this year. Meat output in particular is expected to do well, increasing by about 5.5 percent over 1977. A good increase in herd size, according to the 1 January 1978 census, makes this number attainable if feed supplies can be maintained.

Growth in employment—a topic not covered in the plan announcement—will almost certainly decline as the number of persons reaching working age drops for the first time in 18 years. As a result, the planners are restating their perennial hopes for large gains in labor productivity. In this connection, 1978 was named the “year of shock labor” by the planners, and a more intensive use of labor and equipment a primary slogan. In addition, Soviet leaders may be counting on a boost in total man-hours worked by encouraging larger holdings of crop land and livestock herds by the private sector. This is probably the least costly and most effective method of simultaneously augmenting a declining labor force and providing a boost to consumption.¹⁷

During the period 1978-80, Soviet defense spending probably will grow temporarily at a lower rate than the long-term average of 4 to 5 percent. This will result primarily from the trailing off in procurement cycles of several major weapons systems currently in production. These procurement cycles do not, however, signal changes in resource allocation policy but rather the phasing in and out of weapons production programs.

¹⁷ On balance, an expansion of labor use in private agriculture will provide mostly a net gain in overall man-hours used in economic activity. For the most part, for member of households in both agriculture and nonagriculture it will be a substitution of labor for leisure rather than a reduction in hours in either socialized agricultural or other economic activity.

During the early 1980s, we expect the Soviets to begin testing and deploying a number of new weapons systems, including the next generation of strategic missiles, aircraft, and ballistic missile and attack submarines. These programs probably will cause defense spending to increase to a pace more in keeping with the long-term growth trend.

The atmosphere in Moscow with regard to defense and the economy will be one of concern in which the leadership may consider making marginal—but not substantial—alterations in military force goals. Marginal alterations, however, would have little impact on the growth of either defense spending or GNP. For example, changes such as those envisaged by a SALT II agreement would produce a savings of only about 1.5 percent of total defense spending for 1978-85 and boost GNP by only about 0.2 percent.

The Soviet hard currency deficit is likely to be between \$2 billion and \$3 billion in 1978. Because repayments on past loans are catching up to new drawings, the growth in debt should be further slowed this year. Imports of Western grain are expected to be between \$2.5 billion and \$3.0 billion, unless the Soviet harvest falls well short of current estimates. Imports of machinery and equipment are expected to decline because of the large drop last year in machinery orders.

In light of the sluggish economic recovery in the West, Soviet exports are not likely to rise as much as in 1977. The volume of hard currency oil exports may rise only slightly this year if at all. Increased oil exports in 1976 and probably 1977 were made possible by restrictions on the growth of domestic oil consumption and the drawing down of fuel stocks. A further slowing in the growth of oil production appears almost certain this year.

Given our estimate of a 1978 trade deficit of \$2.0 billion to \$3.0 billion, Moscow should not experience any difficulty in meeting its financial obligations in 1978 even though they include about \$3.5 billion in debt service. The current excess liquidity in the Eurocurrency market and the high price of gold give Moscow financial flexibility. In this context the USSR recently obtained a \$400 million syndicated Eurocurrency

loan—its first since July 1976—at a very attractive interest rate.

Soviet orders for Western machinery, particularly oil and gas equipment, probably will make a comeback in 1978. Large quantities of exploration and development equipment are needed if Moscow expects even to maintain current levels of oil production over the next several years. In addition, further purchases of compressors, valves, and large-diameter pipe will be required to sustain the growth in gas output.

By the spring of 1978, the volume of oil equipment orders had already exceeded the previous full-year record due largely to a \$158 million order for the expansion of the drill bit plant at Kuybyshev. Negotiations were under way on several large contracts, including the purchase of gas-lift equipment—which could reach \$1 billion over a five-year period—for the giant Samotlor oilfield and the Fedorovo field in West Siberia. Moscow was reportedly shopping for offshore oil equipment to be used in the Caspian Sea, the offshore areas of Sakhalin, and eventually the Barents Sea.

Orders for the metalworking and metallurgy industries in 1978 are expected to pick up from 1977 levels. Moscow could sign some large contracts for electric furnaces, continuous casting facilities, and rolling mills, all for the \$1 billion Kursk metallurgical combine; this equipment is designed to bolster the production and quality of finished steel products. In addition, the Soviets after several years of shopping may finally place an order for a \$1 billion aluminum plant to be located in Sayan-Shushensk, West Siberia.

Although hard currency trade prospects appear good in 1978, the outlook is much dimmer over the longer term. We expect a decline in Soviet oil exports possibly as early as 1979 and accelerating thereafter. Unless oil prices rise drastically, Moscow will be hard put to achieve more than offsetting increases in other exports. The impact of new credits on Soviet import capacity is likely to be minimal. Repayments on past medium- and long-term borrowing are expected to rise and may nearly offset new drawings in 1978. Thanks to their healthy balance-of-payments position, the Soviets could borrow sub-

stantially more and thus boost import capacity for a short time, but we expect Moscow to continue its present conservative financial policies and thus avoid a possible repetition of its earlier heavy borrowing.

Performance of the economy in first half 1979 will depend largely on the harvest of 1978. Generally favorable spring and summer weather into August was expected to yield a record grain

crop, but overall crop prospects for 1978 will remain uncertain until September-October, when harvesting nears completion in Siberia. An above-average crop will impact favorably on the food and clothing industries in 1979, while limiting grain import needs and thereby easing hard currency shortages. A poor crop, on the other hand, would depress economic growth in 1979 and seriously exacerbate the leadership's economic difficulties.

